EPINEPHELUS CYANOPODUS (RICHARDSON), A SENIOR SYNONYM OF *E. HOEDTII* (BLEEKER), AND COMPARISON WITH THE RELATED *E. FLAVOCAERULEUS* (LACEPÈDE)

by

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ABSTRACT. - The serranid fish name *Epinephelus cyanopodus* (Richardson, 1846) is here applied to the grouper identified by most recent authors as *Epinephelus hoedtii* (Bleecker). Other synonyms are *Serranus punctatissimus* Günther, *Homalogrystes luctuosus* De Vis, *Epinephelus suitonis* Tanaka and *Epinephelus kohleri* Schultz. The species occurs in the western Pacific from southern Japan south to Queensland and east to the Marshall Islands and Gilbert Islands. The closely related *E. flavocaeruleus* Lacepède, 1802) is known only from the Indian Ocean. Junior synonyms include *Holocentrus gymnosus* Lacepède, *Bodianus macrocephalus* Lacepède, *Serranus borbonicus* Quoy and Gaimard and *Perca flavapurpurea* Bennett. We are able to distinguish *E. cyanopodus* and *E. flavocaeruleus* only by color, the principal difference being the numerous dark spots on the former which are lacking in the latter. Also, *E. flavocaeleus* retains yellow on the fins and caudal peduncle in the adult form (the yellow disappearing only on very large adults).

RÉSUMÉ. – Le nom *Epinephelus cyanopodus* (Richardson, 1846) est ici appliqué au poisson Serranidae identifié par la plupart des auteurs récents comme *Epinephelus hoedtii* (Bleeker, 1855). D'autres synonymes sont *Serranus punctatissimus* Günther, *Homalogrystes luctuosus* De Vis, *Epinephelus suitonis* Tanaka and *Epinephelus kohleri* Schultz. L'espèce est connue dans l'Océan Pacifique ouest depuis le sud du Japon jusqu'au Queensland et à l'est des îles Marshall et Gilbert. L'espèce voisine *E. flavocaeruleus* (Lacepède, 1802) n'est connue que de l'Océan Indien. Les synonymes de cette dernière espèce sont *Holocentrus gymnosus* Lacepède, *Bodianus macrocephalus* Lacepède, *Serranus borbonicus* Quoy et Gaimard et *Perca flavapurpurea* Bennett. La distinction entre les deux espèces ne peut se faire que par la couleur, la principale différence étant l'existence de nombreuses taches sombres chez *E. cyanopodus*, taches qui sont absentes chez *E. flavocaeruleus*. Cette dernière espèce conserve aussi une teinte jaune sur les nageoires et le pédoncule caudal chez l'adulte (seuls les très grands adultes perdent cette coloration).

Key-words : Pisces, Serranidae, *Epinephelus cyanopodus, Epinephelus hoedtii, Epinephelus flavocaeruleus,* taxonomy, I Indo-Pacific.

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In the fourth volume of his *Histoire Naturelle des Poissons*, Lacepède (1802) named the serranid fish *Epinephelus flavocaeruleus* (as *Holocentrus flavocaeruleus*) for its showy yellow and blue color based on a manuscript description and two drawings by the French naturalist Philibert Commerson who had observed the species in Mauritius in 1769. Lacepède inadvertently created two junior synonyms of this species in the same volume by latinizing two of his vernacular plate names from the previous volume, namely *Bodianus macrocephalus* (figured on pl. 20, fig. 2 in vol. 3) and *Holocentrus gymnosus* (figured on pl. 27, fig. 2 in vol. 3). Valenciennes *in* Cuvier and Valenciennes (1828 : 297) correctly united Lacepède's three nominal species under the name *Serranus flavocaeruleus*. He redescribed the species from the specimen on which Quoy and Gaimard (1824) based their description of *Serranus borbonicus*. They gave the locality as « l'île de Bourbon » (= La Réunion), but Valenciennes recorded it as « l'Isle-de-France » (= Mauritius). Bennett (1830) gave this fish yet another name, *Perca flavapurpurea*, and illustrated it in color (pl. 19, reproduced herein as pl. II C).

Richardson (1846 : 233) described *Serranus cyanopodus* solely from a watercolor painting by a Chinese artist commissioned by John Reeves during the period 1828-1830 in the Canton and Macao area. Richardson did not include the Reeves painting for the description. Apart from a listing in footnote form by Günther (1859), this name was ignored in the ichthyological literature until Whitehead (1970) published an account of the Reeves collection of fish paintings in the British Museum (Natural History) and reproduced 72 of them, of which 20 are in color. Among those in color is *Serranus cyanopodus* (Whitehead's pl. 3, fig. a), a light blue fish with blackish dots, 215 mm SL. Apparently the fish was not kept; it is not the type of *S. punctatissimus* (see below) which is only 123 mm SL.

Bleeker (1855) named this fish a second time, as *Serranus Hoedtii*, from two specimens from Ambon, 180 and 232 mm total length.

Günther (1859) published a third description of the species, as *Serranus punctatissimus*, based on a six-inch specimen from China presented to the British Museum by John Reeves. Günther evidently overlooked Richardson's description of *Serranus cyanopodus*. He could not have seen the Reeves watercolors of fishes until the following year when they came to the British Museum.

De Vis (1883) added a fourth name, *Homalogrystes luctuosus*, from a 41-inch specimen from Brisbane.

Boulenger (1895) erred in regarding *Epinephelus hoedtii* as merely a color variety of *E. flavocaeruleus*. He was followed in this by Fowler (1928), Fowler and Bean (1930), Weber and de Beaufort (1931), Schultz *in* Schultz *et al.* (1958), Marshall (1964), and Grant (1982). Katayama (1960), Fourmanoir and Laboute (1976), and Randall (1980), however, were correct in showing that the two are different species, though all used the name *hoedtii* instead of *cyanopodus*.

Tanaka (1915) described *E. cyanopodus* a fifth time as *Epinephelus suitonis* from Japan. Schultz *in* Schultz *et al.* (1958) gave it a sixth name, *E. kohleri*, based on the adult form from the Marshall Islands.

We here adopt *Epinephelus cyanopodus* as the oldest name for the species hitherto referred to as *E. hoedtii* (Bleeker), and we present diagnoses for it and the closely related *E. flavocaeruleus*, and document their known distributions. That there has been confusion over the status of these two serranid fishes is not surprising; we are able to separate them only by color pattern and slightly longer dorsal spines of *E. cyanopodus* on the average (mean length of longest spine 2.53 in head length compared to 2.72 for *E. flavocaeruleus*).

Also closely related is the wide-ranging Indian Ocean species *Epinephelus multinotatus* (Peters); junior synonyms include *E. jayakari* (Boulenger), *E. rankini* Whitley and *E. leprosus* Smith. It has essentially the same meristic data as *cyanopodus* and *flavocaeruleus* and shares with them a similar body configuration, truncate caudal fin, the membranes of the spinous portion of the dorsal fin not incised, and large posterior nostrils in adults. It is differentiated primarily by color : generally dark gray scattered whitish spots of variable size; depending on locality it may have numerous small dark spots on the ventral part of the body.

Specimens have been examined at the following institutions: Bernice P. Bishop Museum, Honolulu (BPBM); British Museum (Natural History), London (BMNH); Muséum National d'Histoire Naturelle, Paris (MNHN); Rijksmuseum van Natuurlijke Historie, Leiden (RMNH); and U.S. National Museum of Natural History, Washington, D.C. (USNM). Methods of counting and measuring of specimens follow Randall and Ben-Tuvia (1983). Proportional measurements are based on specimens 120 mm or larger in standard length (SL); these are rounded to the nearest.05.

Epinephelus cyanopodus

Plate I A-C; Plate II A

Serranus cyanopodus Richardson, 1846 : 233 (type-locality, China).

Serranus Hoedtii Bleecker, 1855 : 406 (type-locality, Ambon).

Epinephelus Hoedtii Bleeker, 1875 : 45, pl. 283, fig. 2 (pl. dated 1871 *fide* Mees, 1962 : 77).

Serranus punctatissimus Günther, 1859 : 144 (type-locality, China).

Homalogrystes luctuosus De Vis, 1883 : 369 (type-locality, Brisbane).

Epinephelus suitonis Tanaka, 1915 : 566 (type-locality, Saiki, Prov. Bungo, Japan); Tanaka, 1916 : 402, pl. 109, fig. 331.

Epinephelus kohleri Schultz *in* Schultz *et al.*, 1958 : 336, fig. 51 (type-locality, Rongerik Atoll, Marshall Islands).

Description : Dorsal rays XI, 16 or 17; anal rays III,8; pectoral rays 18-20 (rarely 20); lateral-line scales 63-75; oblique rows of scales from upper end of gill opening to caudal fin base 130-147; auxiliary scales present on body of adults; maxilla with tiny scales; gill rakers 8-11 + 15-17.

Body depth 2.4-2.65 in SL; body width 1.9-2.8 in depth; least depth of caudal peduncle 3.15-3.65 in head; head length 2.4-2.65 in SL; snout length 3.4-4.6 in head (relatively shorter in larger specimens); orbit diameter 4.5-6.4 in head; suborbital depth 8.2-10.9 in head; interorbital space strongly convex, the fleshy width 4.2-5.4 in head; maxilla reaching to or slightly beyond a vertical at posterior edge of orbit, the upper jaw length 1.95-2.15 in head; a pair of small to moderate canine teeth anteriorly in jaws; lower jaw with 5 or 6 rows of small teeth anteriorly, diminishing to 2 rows on posterior half; middle opercular spine much nearer lower than upper spine; opercular flap moderately pointed, the dorsal margin nearly straight; preopercular margin finely serrate, the serrae at rounded corner somewhat enlarged; a noticeable indentation in preopercular margin just above the corner; margin of subopercle and interopercle smooth or with a few small serrae hidden beneath the membranous edge.

Third or fourth dorsal spines longest, 2.2-2.8 in head; interspinous membranes of dorsal fin not incised; longest dorsal soft ray (generally fourth to seventh) 2.35-2.8 in head; distal ends of posterior dorsal and anal rays not approaching caudal fin base; soft portion of anal fin not angular, the second to fourth rays longest, 2.0-2.4 in head; caudal fin truncate to slightly emarginate, its length 1.6-1.8 in head; pectoral fins rounded, the middle rays longest, 1.7-2.0 in head; pelvic fins not approaching anus, their length 1.7-2.0 in head.

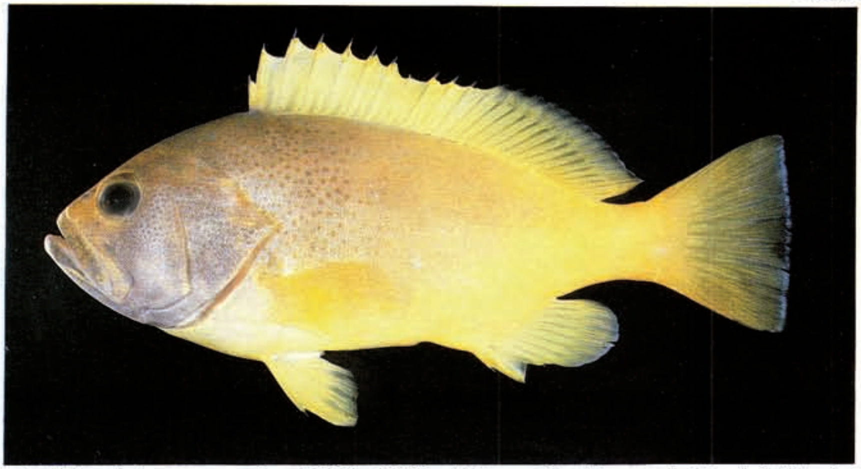
Color of adults when fresh : light bluish gray (which may in time alter to light brown) with numerous small black spots and scattered, irregular, larger black spots on head, body and fins (the larger spots usually smaller than pupil). Subadults lack these larger spots; they may have a broad black submarginal band posteriorly on the caudal fin and lesser submarginal black bands posteriorly in the dorsal and anal fins; the pelvic fins may be broadly tipped with black. A juvenile 117 mm in SL from Enewetak was mainly yellow in life, the head and dorsoposterior part of the body with a wash of bluish gray and faint dark dots (pl. I A). Occasional juveniles and subadults to perhaps 150 to 200 mm SL in the Marshall Islands and Gilbert Islands are bluish over the head and body with small dark spots while still retaining yellow on the caudal peduncle and fins, as shown in plate I B.

The 350 mm specimen identified as *E. flavocaeruleus* by Katayama in Masuda *et al.* (1984 : pl. 114 B) is an unusual dark color form of *E. cyanopodus.*

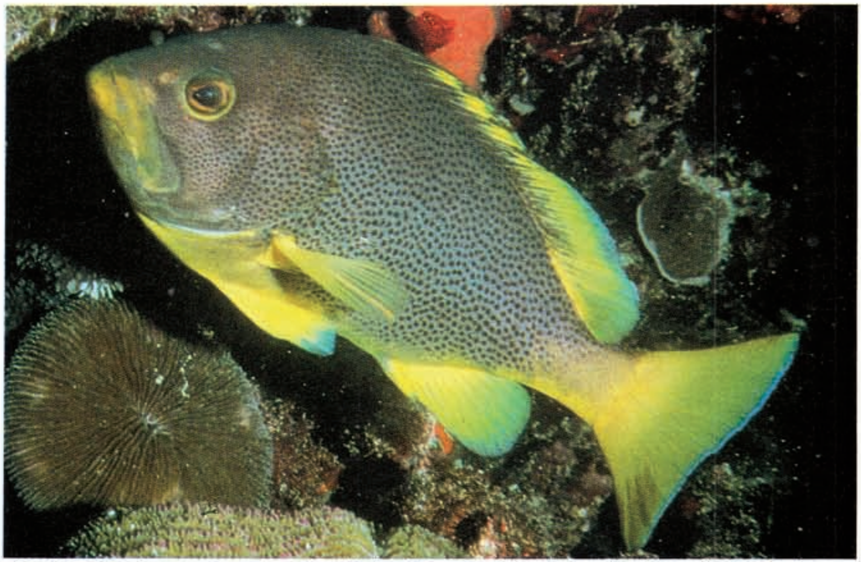
Remarks : We have examined the holotype of *Serranus punctatissimus* Günther, BMNH 1983.12.22.1, 123 mm SL, collected by John Reeves in China. Since there is no type material for *Serranus cyanopodus* (as mentioned above, the species description was based on a painting made for John Reeves in China), we select the holotype of *S. punctatissimus* as the neotype of *S. cyanopodus*. This specimen is described below.

We examined the two syntypes of *Serranus hoedtii* Bleeker, RMNH 5494, 147 and 190 mm SL, from Ambon. We designate the larger of the two as the lectotype.

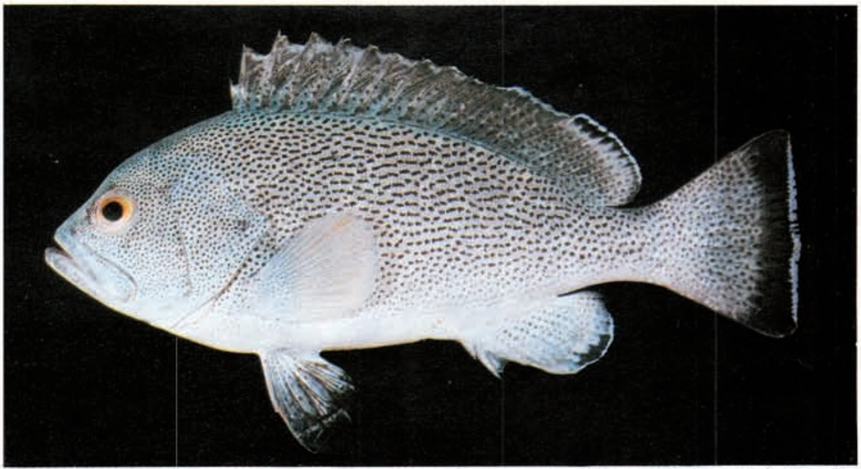
E. cyanopodus ranges from southern Japan (Hiyama and Yasuda, 1971; Masuda *et al.*, 1975) south through the Philippines (Fowler and Bean, 1930), South China Sea (Kyushin *et al.*, 1982) and Indonesia (Bleeker, 1873-1876) to southern



A. *Epinephelus cyanopodus*, BPBM 29026, 117 mm SL, Enewetak, Marshall Islands (photo by J. Randall).



B. *Epinephelus cyanopodus*, Kwajalein, Marshall Islands (underwater photo by James M. Wedge).



C. *Epinephelus cyanopodus*, BPBM 12217, 148 mm SL, Enewetak, Marshall Islands (photo by J. Randall).

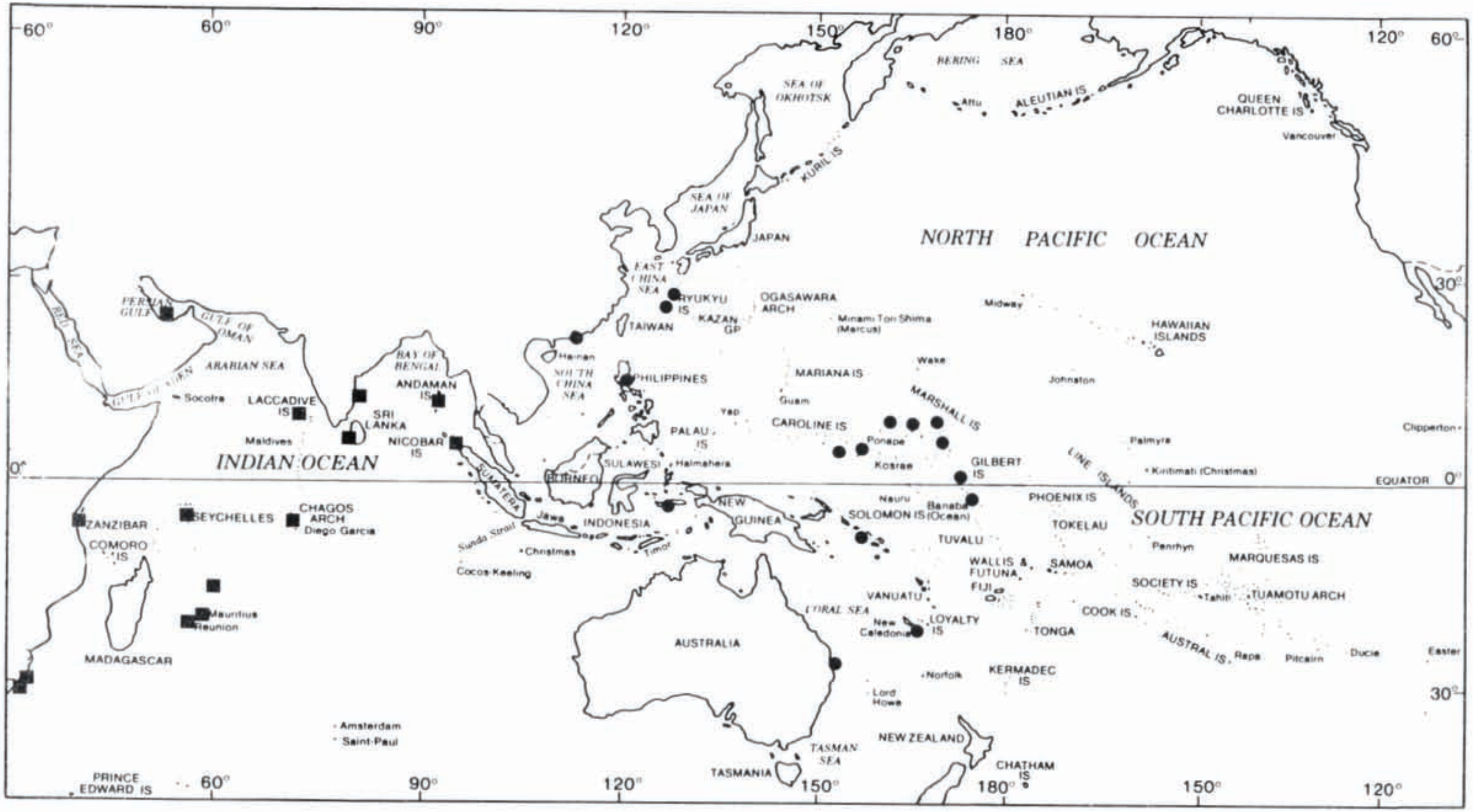


Fig. 1. – Distribution of *Epinephelus cyanopodus* (●) and *E. flavocaeruleus* (■) based on specimens examined and reliable literature records.

Queensland (Ogilby, 1912) and eastward in Oceania to the Gilbert Islands (Günther, 1873) and Marshall Islands (Fowler, 1928). It is not known from the Indian Ocean.

In a survey of ciguatera at Enewetak and Bikini, Marshall Islands, Randall (1980) found three of 11 specimens (348-429 mm SL) of this grouper slightly toxic and one moderately toxic. Three of these specimens had fish remains in their stomachs, one had a snake eel, and two had eaten calappid crabs; the remaining five had empty stomachs. Hiatt and Strasburg (1960) reported fish fragments in the stomach of one of two specimens obtained in the Marshall Islands.

In the Marshall Islands *E. cyanopodus* is usually found around isolated coral heads in the lagoon, at times in depths as little as 2 m. One, however, was taken at Enewetak outside the reef in over 100 m. Fournanoir and Laboute (1976) recor ded it to 150 m at New Caledonia.

Several authors have reported this species to a total length of 900 mm. Ogilby (1912) measured the smallest of several he saw from Moreton Bay, Queensland, at 32 inches, adding that one in the Brisbane market «could not have been less than four feet» (1220 mm).

Neotype of *Epinephelus cyanopodus* : BMNH 1983.12.22.1, 123 mm SL, Canton or Macao, China, J. Reeves, 1812-1831.

Description of Neotype : Dorsal rays XI, 17; anal rays III,8; pectoral rays 19; lateral-line scales 66; oblique scale rows from upper end of gill opening to caudal fin base 135; gill rakers 9 + 17.

Depth of body 2.5 in SL; width of body 2.4 in depth; least depth of caudal peduncle 3.2 in head; head length 2.65 in SL; snout 4.6 in head; orbit diameter 4.85 in head; fleshy interorbital width 5.4 in head; maxilla reaching to below posterior edge of orbit, the upper jaw length 2.1 in head; fourth dorsal spine longest, 2.6 in head; membranes of spinous portion of dorsal fin not incised; fifth to ninth dorsal soft rays longest, 2.4 in head; anal fin rounded, the third to fourth soft rays longest, 2.0 in head; caudal fin truncate (when spread), 1.6 in head, pectoral fins 1.75 in head; pelvic fins 1.8 in head.

Dentition typical of the genus, the canines small.

Opercle with three spines, the middle one nearest the lower spine. Posterior margin of preopercle finely serrate with a slight emargination above angle, the serrae at angle slightly enlarged; subopercle and interopercle smooth.

Color in preservative : pale gray with numerous small dark spots; caudal fin (and to a lesser extent the soft portions of dorsal and anal fins) with a narrow whitish posterior margin and a broad blackish submarginal zone (the pale margin about 1 mm wide on caudal fin, and the submarginal band 9 mm); pelvic fins broadly tipped with blackish.

Other Material : BPBM 7265, 197 mm SL, Ishigaki, Ryukyu Islands; BPBM 8796, 294 mm SL, Enewetak, Marshall Islands; BPBM 8930, 319 mm SL, Enewetak; BPBM 12217, 2 : 148-189 mm SL, Enewetak; BPBM 19149, 230 mm SL, Okinawa, Ryukyu Islands; BPBM 22213, 141 mm SL, Luzon, Philippines; BPBM 29026, 117 mm SL, Enewetak; BMNH 1865.65.3.2.61, 120 mm SL, Micronesia; BMNH 1881.10.20.12, 131 mm SL, Ponape, Caroline Islands; BMNH 1881.10.20.62, 360 mm SL, Mortlock, Caroline Islands; BMNH 1969.8.26.137, 274 mm SL, Tarawa, Gilbert Islands (Kiribati); RMNH 5494, 3 : 147-209 mm SL (largest selected as lectotype of *Serranus hoedtii*; smallest is a paralectotype; 190-mm specimen not in syntypic series), Ambon; USNM 141922, holotype of *Epinephelus kohleri*, 396 mm SL, Rongerik, Marshall Islands; USNM 266969, 208 mm SL, New Georgia, Solomon Islands; USNM 167491,8 : 55-97 mm SL, Onotoa Gilbert Islands; USNM 181950, 249 mm SL, Majuro, Marshall Islands; USNM 266969, 205 mm SL, Solomon Islands; USNM 266970, 370 mm SL, Bikar, Marshall Islands.

Epinephelus flavocaeruleus

Plate II B, C

Holocentrus flavo-caeruleus Lacepède, 1802: 331, 367 (type-locality, Mauritius).

Holocentrus gymnosus Lacepède, 1802: 335, 372 (type-locality, Mauritius); 1801 : pl. 27, fig. 2 (as Holocentre Gymnose)

Bodianus macrocephalus Lacepède, 1802: 281, 293 (type-locality, Mauritius); 1801: pl. 20, fig. 2 (as Bodian Grosse-Tête).

Serranus borbonicus Quoy and Gaimard, 1824: 312, pl. 57, fig. 2 (type-locality, La Réunion).

Perca flava-purpurea, Bennett, 1830: pl. 19 (this plate was published in Part 4 which the Linnean Society received 10 February 1830) (type-locality, Ceylon).

Description : Dorsal rays XI, 16 or 17; anal rays III, 8; pectoral rays 18 or 19; lateral-line scales 61-74; oblique rows of scales from upper end of gill opening to caudal fin base 129-148; auxiliary scales present on body of adults (but not numerous); maxilla with tiny scales; gill rakers 9-10 + 15-17.

Body depth 2.45-2.8 in SL; body width 2.0-2.8 in depth; least depth of caudal peduncle 3.2-3.5 in head; head length 2.5-2.7 in SL; snout length 3.4-4.3 in head; orbit diameter 4.5-7.2 in head; suborbital depth 7.9-10.5 in head; interorbital space strongly convex, the fleshy width 4.5-5.9 in head; posterior nostrils of large adults notably larger than anterior nostrils; maxilla reaching to or slightly posterior to a vertical at rear edge of orbit, the upper jaw length 1.95-2.15 in head; a pair of small to moderate canine teeth anteriorly in jaw; lower with 5 or 6 rows of small teeth anteriorly, diminishing to 2 rows on posterior half of jaw; middle opercular spine much nearer to lower than to upper spine; opercular flap moderately pointed, the upper margin nearly straight; serrae at rounded corner of preopercle only slightly enlarged; preopercular margin finely serrate with only a slight indentation above the corner; margin of subopercle and interopercle smooth.

Third or fourth dorsal spines longest, 2.5-3.0 in head; interspinous membranes of dorsal fin not incised; longest dorsal soft ray (generally third to sixth) 2.45-2.8 in head; distal ends of posterior dorsal and anal rays not approaching caudal fin base; soft portion of anal fin not angular, the second or third rays longest, 2.05-2.3 in head; caudal fin truncate to slightly emarginate, its length 1.5-1.8 in head;

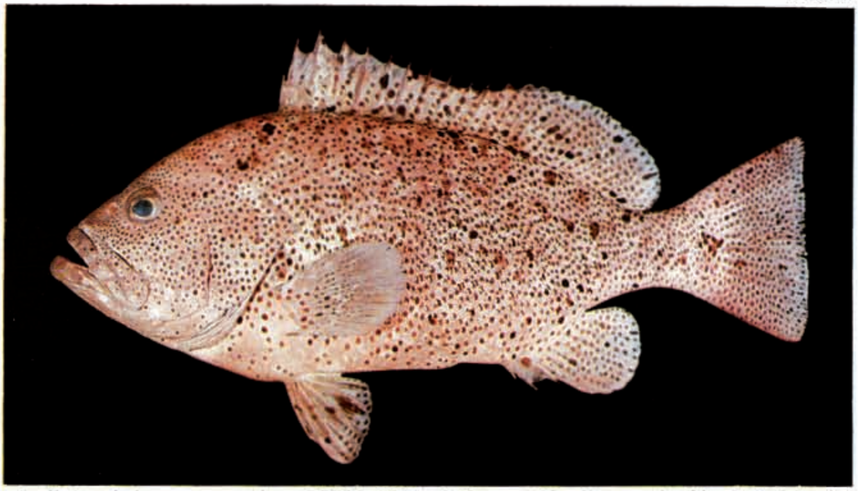
pectoral fins rounded, the middle rays longest, 1.75-2.15 in head; pelvic fins not approaching anus, their length 1.7-1.95 in head.

Color of adults when fresh: deep blue (dark brown in preservative), sometimes flecked with light blue, becoming yellow on caudal peduncle and fin; posterior margin of caudal fin (or just the corners) broadly black; soft portions of dorsal and anal fins broadly yellow distally, often with a blackish margin (which may be submarginal to a very narrow whitish margin); spinous portion of dorsal fin with a very narrow black margin; paired fins yellow except base which is deep blue, the pelvics broadly tipped with black; lips (particularly the upper) often with yellow areas. Also there may be broad yellow markings dorsally on the head (as shown in the larger color figure of Kyushin *et al.*, 1977 on p. 194). The yellow is more extensive on smaller individuals, extending anterior to caudal peduncle and to all except basal part of spinous portion of dorsal and anal fins. Large adults may lose all of the yellow color, becoming deep blue to black. Rudy van der Elst informed us that two blue and yellow individuals placed in one of the large tanks at the Oceanographic Research Institute in Durban eventually lost all of their yellow coloration and the ground color became nearly black. A photo sent by him revealed only a dark fish with pale margins posteriorly on the dorsal and caudal fins.

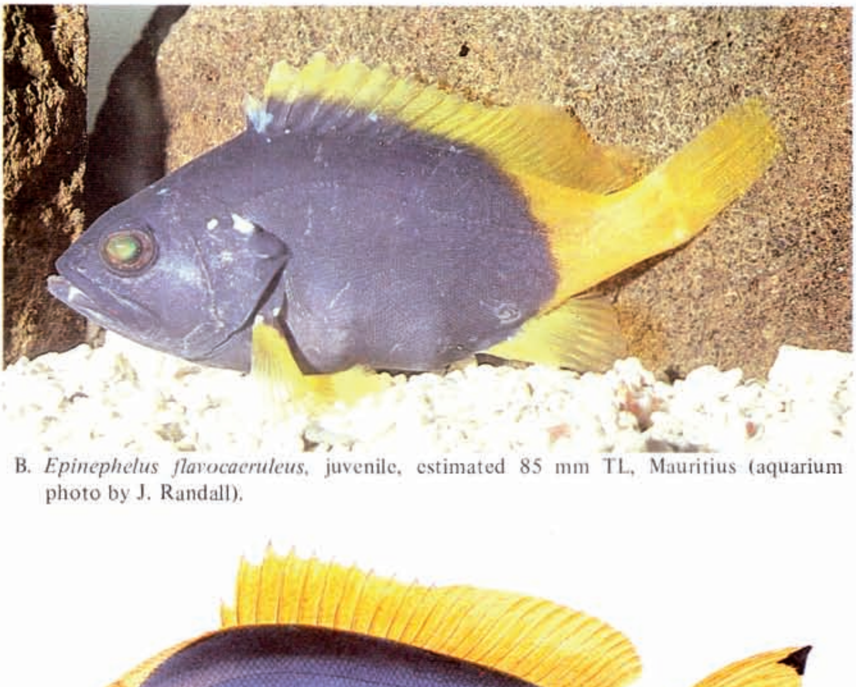
Remarks : As mentioned above, Lacepède (1802) apparently described *Holocentrus flavocaeruleus* (as well as *H. gymnosus* and *Bodianus macrocephalus*) only from the notes and drawings of Commerson. Valenciennes (1828) did not cite a Commerson specimen in his redescription of *flavocaeruleus*. M.L. Bauchot, however, has found a dried specimen of this species collected by Commerson at Mauritius in the Muséum National d'Histoire Naturelle in Paris (MNHN A. 5747, 244 mm SL) which she believes was the basis for Commerson's notes, at least in part (Bauchot, Desoutter and Randall, *in press*). We here designate this specimen as the neotype of the species (description below).

Epinephelus flavocaeruleus is known in the Indian Ocean along the coast of East Africa from Zanzibar (Playfair and Günther, 1867), Kenya and Tanzania (Morgans, 1982) to Port Alfred, South Africa (Smith, 1949), La Réunion (Quoy and Gaimard, 1824; Bleeker and Pollen, 1874; in this paper Bleeker named varities *xanthometopon* and *melanometopon*), Seychelles (Smith and Smith, 1963), Laccadives (Jones and Kumaran, 1980), India and Andaman Islands (Day, 1876). Sri Lanka (Bennett, 1828), and Chagos Archipelago and East Burma Sea (Kyushin *et al.*, 1977). We here record it for the first time from the Persian Gulf (BMNH 1975, 4.5.11, 46 mm SL) from a specimen collected at Das Island by the late Roger Lubbock, and from Sabang, an island at the northwest tip of Sumatra (Sumatera) (RMNH 12064, 235 mm SL).

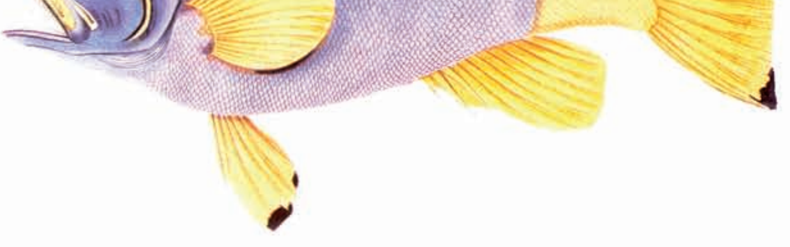
Van der Elst (1981) reported that this species attains 900 mm total length. He wrote that juveniles in South Africa occur around shallow reefs, but adults are most frequently found around deeper reefs, often to 150 m. The food consists mainly of reef fishes, but crabs, lobsters and squids are also eaten. He added that preliminary research indicates this fish is most active at night; spawning has been recorded off East Africa during summer.



A. *Epinephelus cyanopodus*, BPBM 8930, 319 mm SL, Enewetak. Marshall Islands (photo by J. Randall).



B. *Epinephelus flavocaeruleus*, juvenile, estimated 85 mm TL, Mauritius (aquarium photo by J. Randall).



C. *Epinephelus flavocaeruleus*, about 265 mm TL, Sri Lanka (after Bennett, 1830: pl. 19, as *Perca flava-purpurea*).

Neotype of *Epinephelus flavocaeruleus* : MNHN A. 5747, 244 mm SL (should be adjusted to 241 mm due to protrusion of premaxilla), dried 1/2 skin of the right side, Mauritius, P. Commerson, 1769.

Description of Neotype : Dorsal rays XI, 17; anal rays III, 8; pectoral rays 19; oblique scale rows from upper end of gill opening to caudal fin base 138 (lateral-line scales could not be counted).

Body depth and some other morphometrics not measured (accurate measurement from skin not possible); head length (adjusted for premaxillary protrusion) 2.7 in SL; orbit diameter 5.6 in head; third and fourth dorsal spines longest, 3.0 in head; anal fin rounded; caudal fin slightly emarginate (but not spread); pectoral fins 2.15 in head; pelvic fins 1.95 in head.

Opercle with three spines, the middle one nearest the lower spine. Posterior margin of preopercle finely serrate with a slight emargination above angle, the serrae at angle slightly enlarged; subopercle and interopercle smooth.

Color of dried specimen brown to a demarcation between rear base of dorsal and anal fins, then abruptly paler.

Other Material : BPBM 27756, 206.5 mm SL, Durban, South Africa; BPBM 28810, 385 mm SL Cape Vidal, South Africa; BMNH 1883.11.26.14, 370 mm SL (dried stuffed specimen), Madras, India; BMNH 1840.12.12.26, 330 mm SL (dried stuffed specimen), Mauritius; BMNH 1855.12.16.557, 97 mm SL, Mauritius; BMNH 1866.1.19.8, 203 mm SL, Zanzibar; BMNH 1868.5.30.15, 152 mm SL, Zanzibar: BMNH 1891.10.29.7, 209 mm SL (dried 1/2 skin), Sri Lanka; BMNH 1908.12.28.113, 130 mm SL, Mauritius; BMNH 1916.9.23.9, 165 mm SL, Durban, South Africa; BMNH 1975.4.5.11, 46 mm SL, Das Island, Persian Gulf; MNHN 7407, holotype of *Serranus borbonicus*, 155 mm SL, Mauritius; MNHN 7408, 188 mm SL, Sri Lanka; RMNH 4402, 91 mm SL, Mauritius; RMNH 12064, 235 mm SL, Puluweh, Sabang (5°53'N, 95°17'E), Sumatra, Indonesia; USNM 181830, 283 mm SL, Zanzibar; USNM 216959, 360 mm SL, St. Brandon's Shoals; USNM 266968, 267 mm SL, Sri Lanka.

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